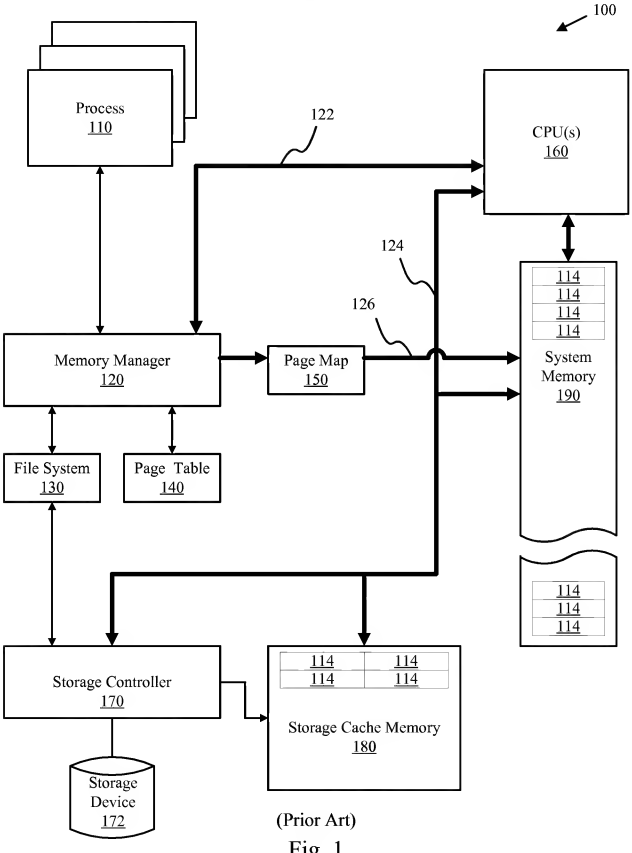

(Prior Art)

Fig. 1

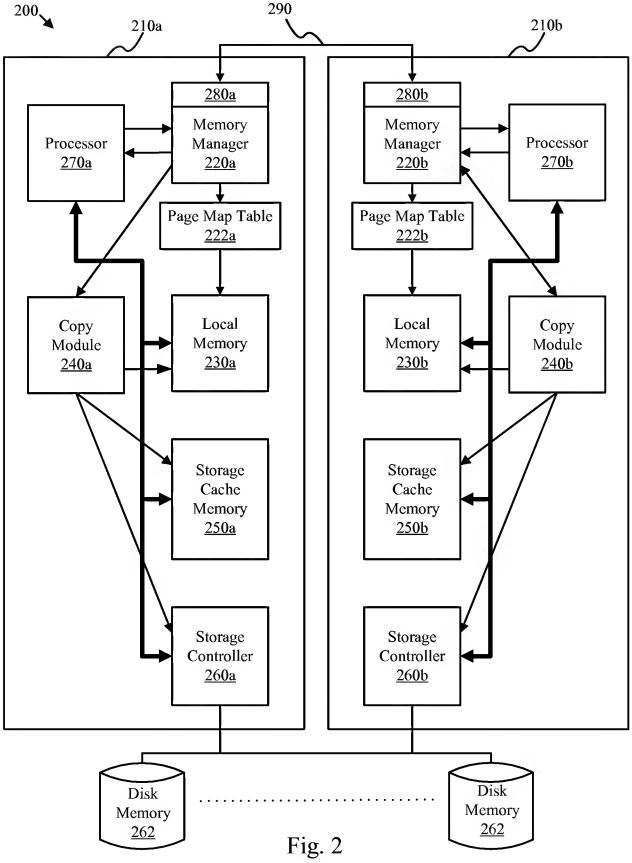
200
290
210a
210b
280a
Memory Manager 220a
Processor 270a
Page Map Table 222a
Copy Module 240a
Local Memory 230a
Storage Cache Memory 250a
Storage Controller 260a
280b
Memory Manager 220b
Processor 270b
Page Map Table 222b
Local Memory 230b
Copy Module 240b
Storage Cache Memory 250b
Storage Controller 260b
Disk Memory 262
Disk Memory 262

Fig. 2

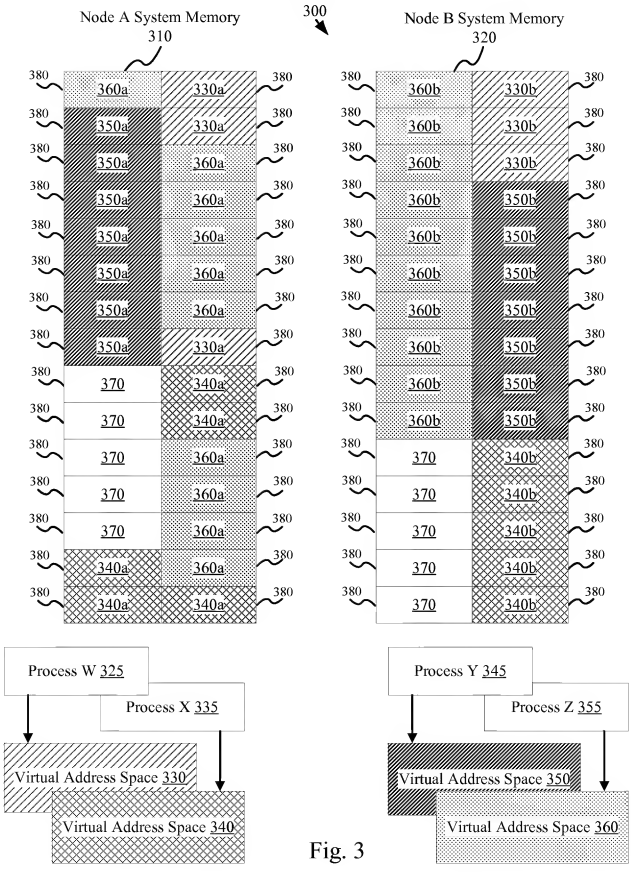
300
Node A System Memory
310
Node B System Memory
320
380
360a
330a
350a
370
340a
360b
330b
350b
340b
Process W 325
Process X 335
Virtual Address Space 330
Virtual Address Space 340
Process Y 345
Process Z 355
Virtual Address Space 350
Virtual Address Space 360

Fig. 3

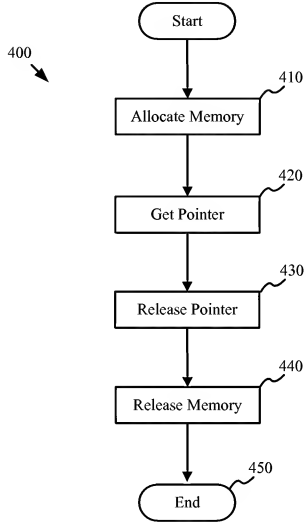
400
Start
410
Allocate Memory
420
Get Pointer
430
Release Pointer
440
Release Memory
450
End

Fig. 4

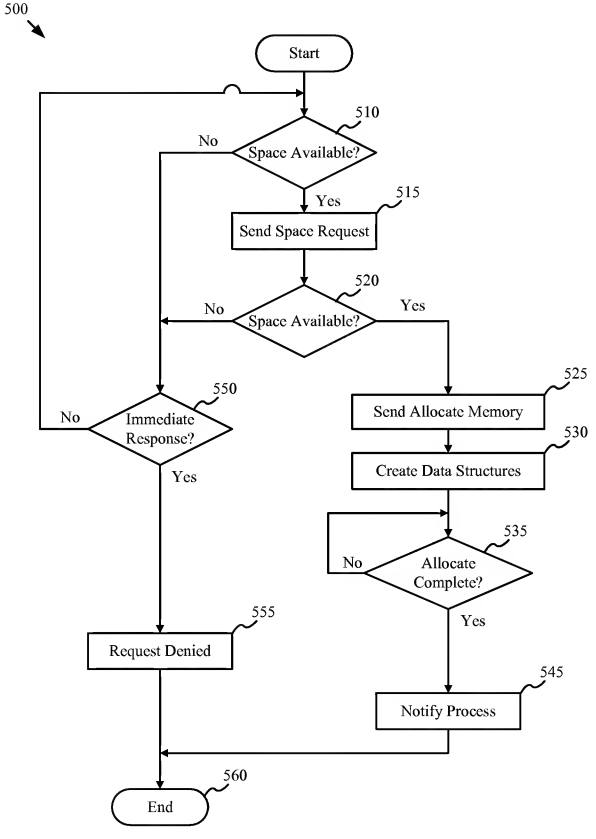
500
Start
510
Space Available?
No
Yes
515
Send Space Request
520
Space Available?
No
Yes
550
Immediate Response?
No
Yes
525
Send Allocate Memory
530
Create Data Structures
535
Allocate Complete?
No
Yes
555
Request Denied
545
Notify Process
560
End

Fig. 5

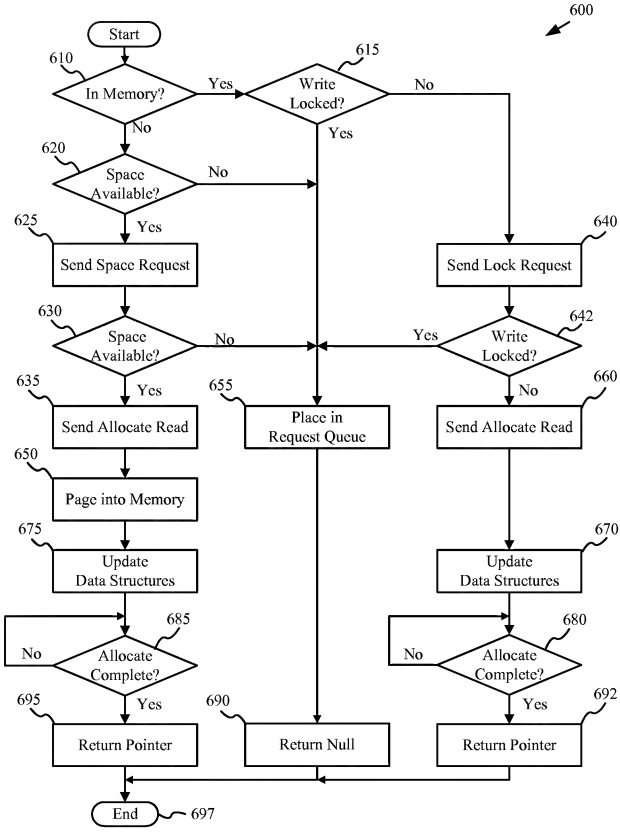
600
Start
610
In Memory?
Yes
615
Write Locked?
No
No
Yes
620
Space Available?
No
625
Yes
Send Space Request
640
Send Lock Request
630
Space Available?
No
Yes
642
Write Locked?
635
Yes
655
Place in Request Queue
No
660
Send Allocate Read
Send Allocate Read
650
Page into Memory
675
Update Data Structures
670
Update Data Structures
685
680
No
Allocate Complete?
No
Allocate Complete?
695
Yes
690
Yes
692
Return Pointer
Return Null
Return Pointer
End
697

Fig. 6

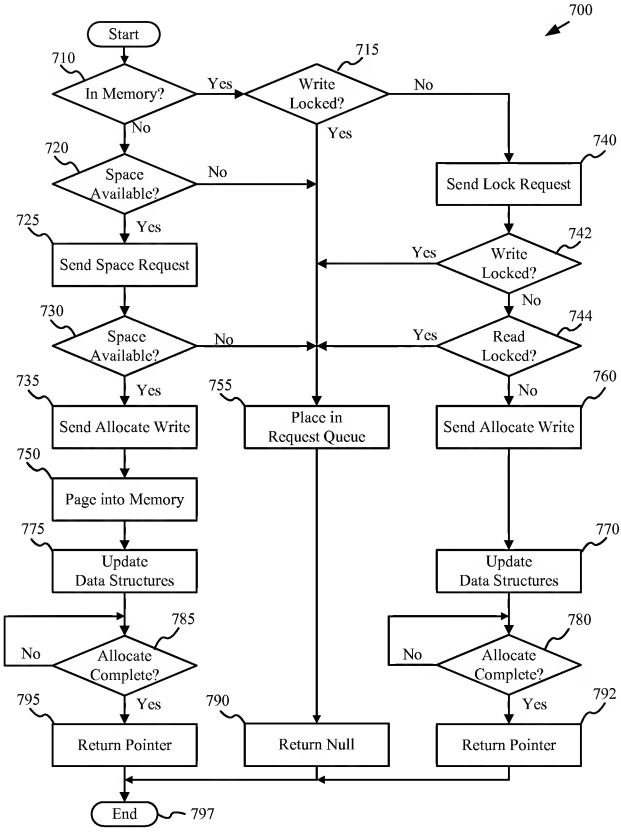
700
Start
710
In Memory?
Yes
715
Write Locked?
No
No
Yes
720
Space Available?
No
740
Send Lock Request
Yes
725
Send Space Request
742
Write Locked?
Yes
No
730
Space Available?
No
744
Read Locked?
Yes
No
735
Send Allocate Write
755
Place in Request Queue
760
Send Allocate Write
750
Page into Memory
775
Update Data Structures
770
Update Data Structures
785
Allocate Complete?
No
780
Allocate Complete?
No
795
Return Pointer
790
Return Null
792
Return Pointer
Yes
Yes
End
797

Fig. 7

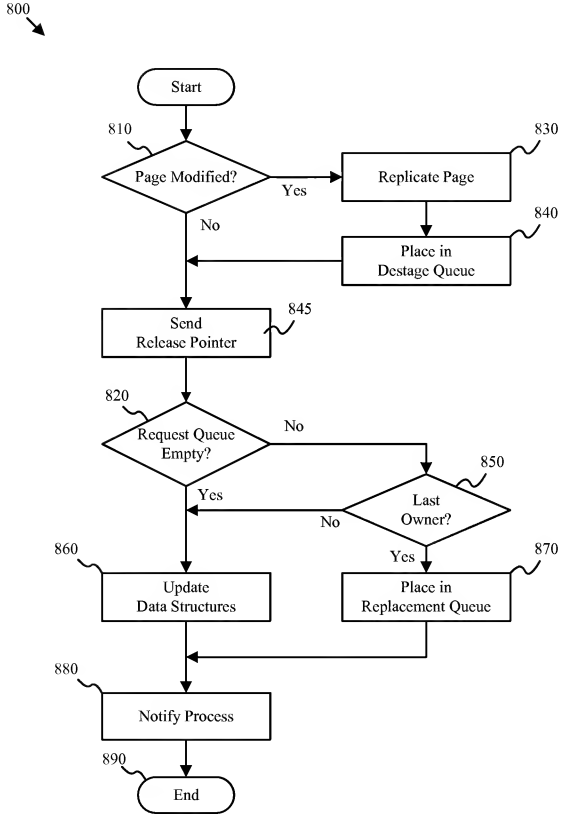
800
Start
810
Page Modified?
Yes
No
830
Replicate Page
840
Place in
Destage Queue
845
Send
Release Pointer
820
Request Queue
Empty?
No
Yes
850
Last
Owner?
No
Yes
860
Update
Data Structures
870
Place in
Replacement Queue
880
Notify Process
890
End

Fig. 8

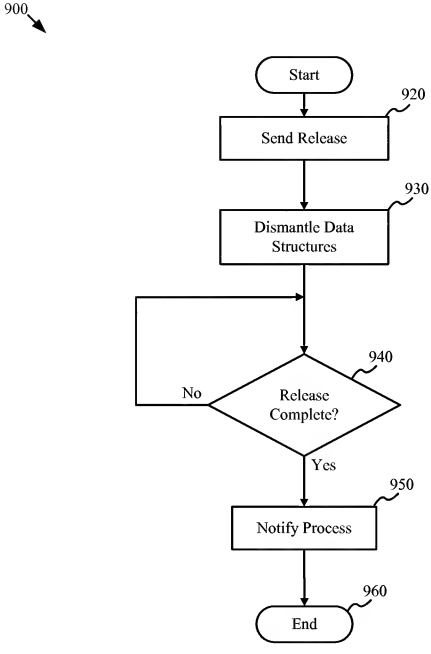
900
Start
920
Send Release
930
Dismantle Data Structures
940
No
Release Complete?
Yes
950
Notify Process
960
End

Fig. 9

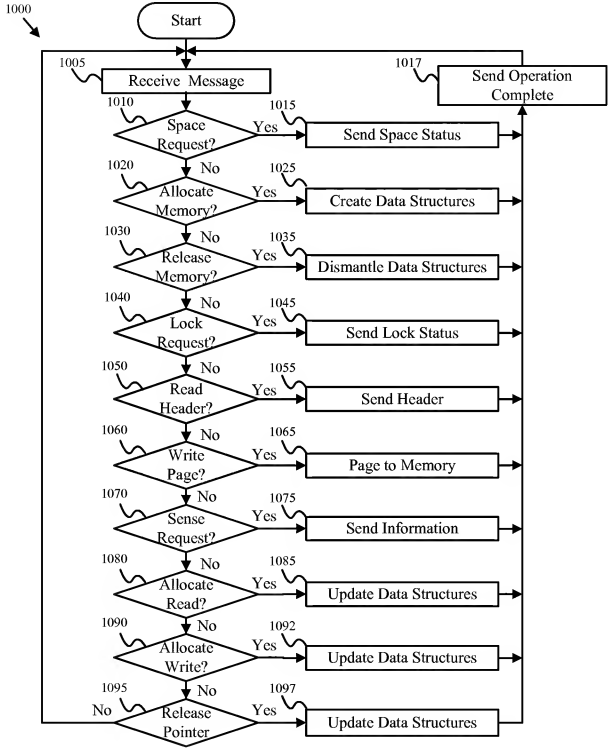
1000
Start
1005
Receive Message
1017
Send Operation Complete
1010
Space Request?
Yes
1015
Send Space Status
No
1020
Allocate Memory?
Yes
1025
Create Data Structures
No
1030
Release Memory?
Yes
1035
Dismantle Data Structures
No
1040
Lock Request?
Yes
1045
Send Lock Status
No
1050
Read Header?
Yes
1055
Send Header
No
1060
Write Page?
Yes
1065
Page to Memory
No
1070
Sense Request?
Yes
1075
Send Information
No
1080
Allocate Read?
Yes
1085
Update Data Structures
No
1090
Allocate Write?
Yes
1092
Update Data Structures
No
1095
Release Pointer
Yes
1097
Update Data Structures
No

Fig. 10

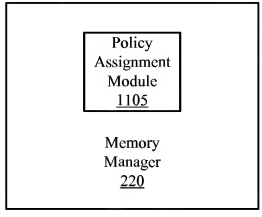

Fig. 11